Certificate Number: 5055.02

TEST REPORT

Report No.:	SRTC2020-9003(R)-0062
Product Name:	LTE Ufi
Model Name:	A004ZT
Applicant:	ZTE Corporation
Manufacturer:	ZTE Corporation
Specification:	FCC Part15B (Certification) (2019 edition)
FCC ID:	SRQ-A004ZT

The State Radio_monitoring_center Testing Center (SRTC)

15th Building, No.30 Shixing Street, Shijingshan District,

Beijing, China

Tel: 86-10-57996183 Fax: 86-10-57996388

CONTENTS

1. General information

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC).
The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company:	The State Radio_monitoring_center Testing Center (SRTC)
Address:	15th Building, No.30 Shixing Street, Shijingshan District
Testing location：	No.80, Zhaojiachang, BeizangCun, Daxing District, Beijing, China.
City:	Beijing
Country or Region:	China
Contacted person:	Liu Jia
Tel:	+86 10 57996183
Fax:	+86 10 57996388
Email:	liujiaf@srtc.org.cn

1.3 Applicant’s details

Company:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, NanshanDistrict, Shenzhen, Guangdong,518057,P.R.China
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Zhao Yang
Tel:	+ 86-029-83637990
Email:	zhao.yangxa@zte.com.cn

1.4 Manufacturer’s details

Company:	ZTE Corporation
Address:	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, NanshanDistrict, Shenzhen, Guangdong,518057,P.R.China
City:	Shenzhen
Country or Region:	P.R.China
Contacted person:	Zhao Yang
Tel:	+ 86-029-83637990
Email:	zhao.yangxa@zte.com.cn

1.5 Application details

Date of reception of test sample: 16th Sep. 2020
Date of test: 16th Sep. 2020 to 22th Oct. 2020

1.6 Reference specification

FCC Part 15B, 2019 (Certification)

1.7 Information of EUT

1.7.1 General information

Name of EUT	LTE Ufi
Model Name	A004ZT
FCC ID	SRQ-A004ZT
Frequency Range	WCDMA: FDD II / FDD IV LTE: FDD 2/ FDD 4/ FDD 12/ FDD 17 /TDD 41 WiFi: 2.4~2.4835GHz/5.15-5.25GHz
Equipment Class	Class B
Power Supply	Battery
Rated Power Supply Voltage	3.8V
Extreme Temperature	Lowest: -10°C Highest: +55°C
Extreme Voltage	Minimum: 3.6V Maximum: 4.4V
HW Version	H01
SW Version	S01

1.7.2EUT details

Product Name	Model Name	IMEI
LTE Ufi	A004ZT	861046050002923

1.7.3 Auxiliary equipment details

AE (Auxiliary Equipment) 1#: Laptop

Manufacturer	Lenovo
Model Number	E7000
S/N	MP1965WU
Input Voltage	100V-240V AC

AE (Auxiliary Equipment) 2#: USB Cable1

Manufacturer	Kingpower Co.,Ltd
Model Number	USB-TC30-W-100-M

AE (Auxiliary Equipment) 3#: USB Cable2

Manufacturer	Shenz luxshare-ict co.ltd
Model Number	USB-TC30-W-100-M

AE (Auxiliary Equipment) 4#: Battery

Type	Li-Lon
Manufacturer	ZHUHAI COSMX BATTERY CO.,LTD.
Model Number	Li3945T44P4h815174

AE (Auxiliary Equipment) 5#: Charger

Manufacturer	JIANGSU CHENYANG ELECTRON CO LTD
Model Number	SP-11N1201250-Z

Note1: The EUT is sold without power adapter. The Charger (AE5) was provided by laboratory. Just for test.

2.Test information

2.1 Summary of the test results

No.	Test case	FCC reference	Verdict
1	Conducted emissions	15.107	Pass
2	Radiated emissions	15.109	Pass

Approved By:Mr. Liu Wei Director of the test department	Checked By:Mr. Guo Yu Vice director of the test department
Tested By: Mr Chen Huaiwei	Issued date: **2020.10.22**

2.2 Test result

2.2.1Conducted Emissions-FCC Part15.107

Ambient condition:

Temperature	Relative humidity	Pressure
24.2°C	40.8%	100.3kPa

Test Setup with laptop:

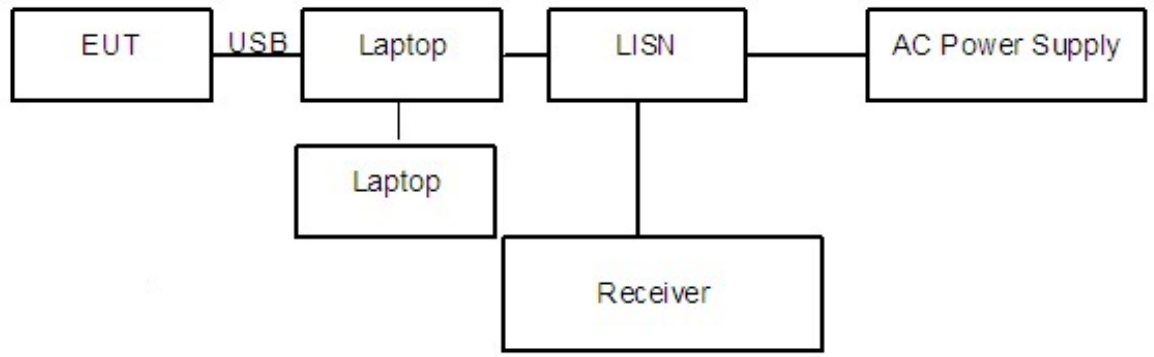


Figure 1

Test Procedure:

The EUT is placed on a non-metallic table 0.8m above the horizontal metal reference ground plane. The EUT was connected with a laptop via the USB cable and transferred the data from laptop to the EUT. The laptop's LAN port is connected with another laptop via cable. And the data transferring between two laptops is maintained.
The AC main power supply of the laptop is connected to LISN and LISN is connected to the reference ground. The test set-up and the test methods are performed according to ANSI C63.4:2014.
Then start the test software EMC32. Sweep the whole frequency band through the range from 150 KHz to 30 MHz with RBW 9kHz, VBW 30kHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.
The data of cable loss has been calibrated in full testing frequency range before the testing.

Test Setup with charger:

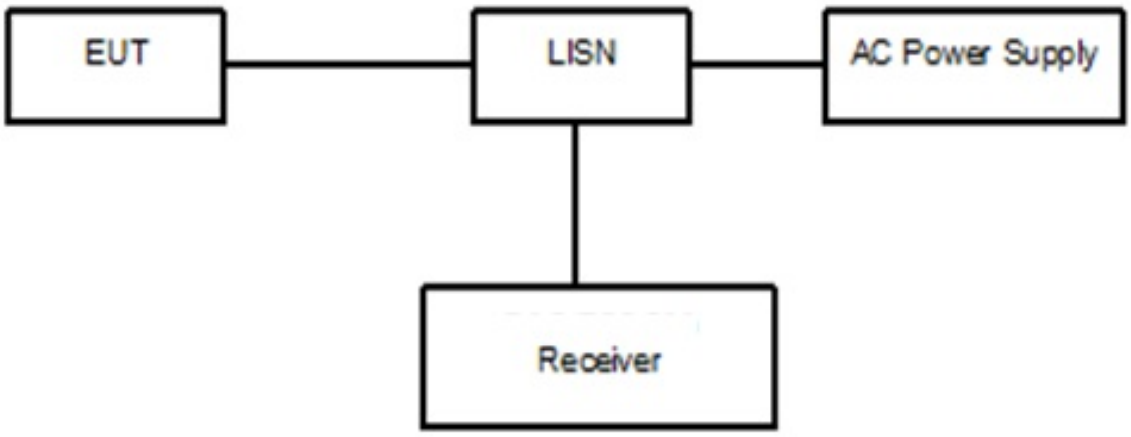


Figure 2

Test Procedure:

The EUT is placed on a non-matellic table 0.8m above the horizontal metal reference ground plane. The EUT is connected with LISN via the charger. The LISN is connected to the reference ground. Open the functions of EUT.
The test set-up and the test methods are performed according to ANSI C63.4:2014. Then start the test software EMC32. Sweep the whole frequency band through the range from 150 KHz to 30 MHz with RBW 9kHz, VBW 30kHz. The measurement should be done for both L line and N line. During pre-test, the receiver uses both peak detector and average detector. And the final test, the receiver uses both average detector and Quasi-peak detector.
The data of cable loss has been calibrated in full testing frequency range before the testing.
A “reference path loss” Corr.(dB) is established and the L_{cable}+ATT+VDF is the attenuation of ” reference path loss”, and including the cable loss, the attenuation of the attenuator, the voltage division factor of AMN.
The measurement results are obtained as described below:
$P_{result}=P_{mea}$+ Corr.(dB)

Sample calculation: (25.05 dBμV) = (-4.55 dBμV) + (29.6 dB), the corresponding frequency is 0.439172MHz.

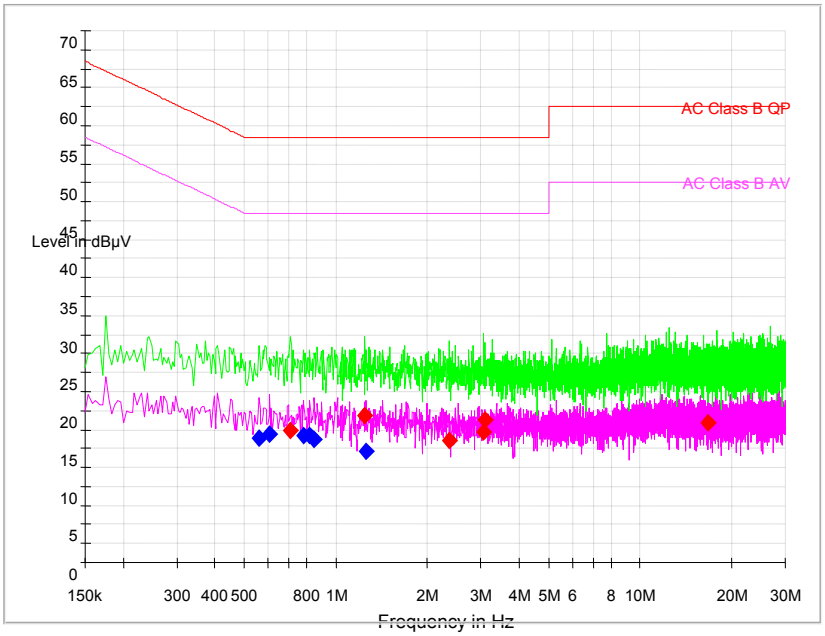
Limit:

Frequency of Emission(MHz)	Limits(dBμV)	
	Quasi-peak	Average
0.15～0.5	66 to 56*	56 to 46*
0.5～5	56	46
5～30	60	50

Note: * Decreases with the logarithm of the frequency

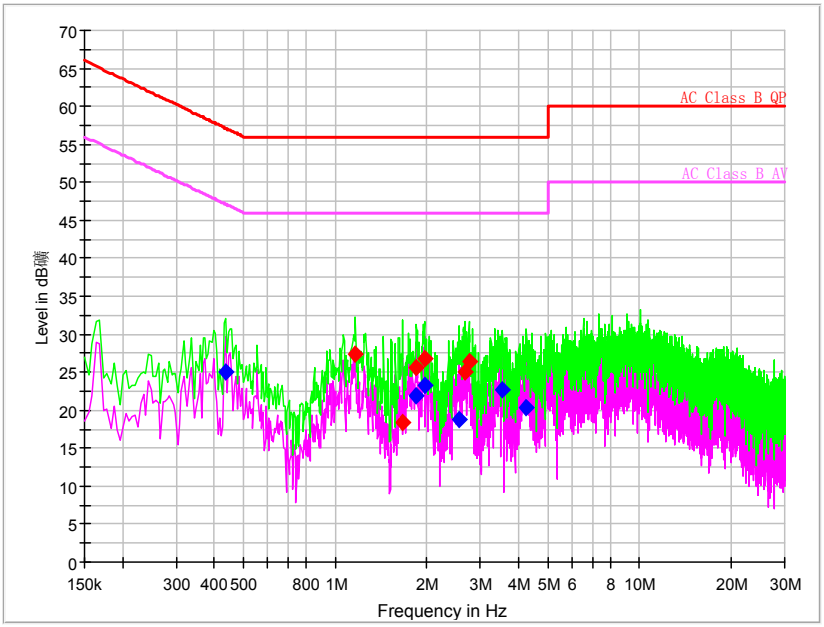
Test result:

Noise Level of the Measuring Instrument



Pic1.Conducted emission L and N Line

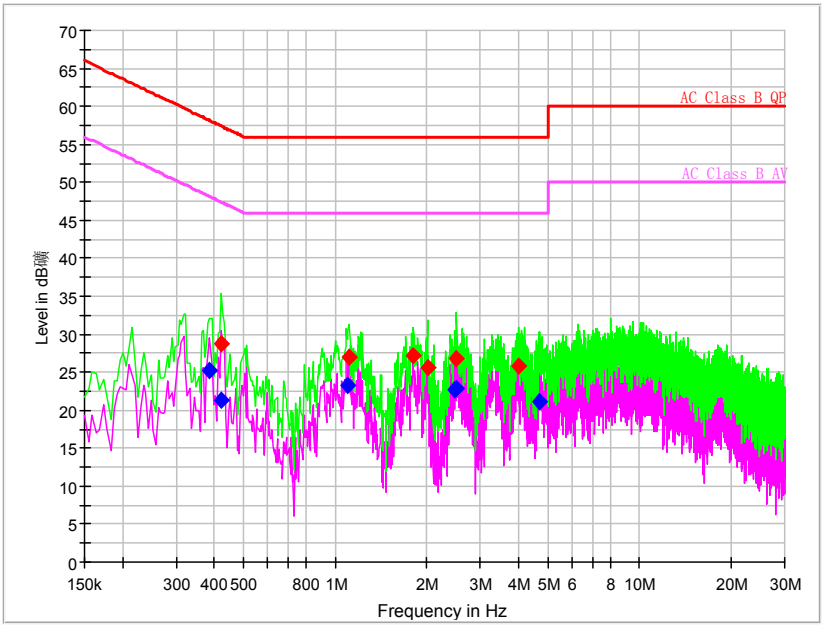
EUT+4#Battery+5#Charger+2#USB Cable1:



Pic2. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBµV)	Pmea Average (dBµV)
0.439172	---	25.05	47.08	22.03	L	29.6	---	-4.55
1.166766	27.36	---	56.00	28.64	L	29.7	-2.34	---
1.665820	18.47	---	56.00	37.53	L	29.7	-11.23	---
1.852383	---	21.90	46.00	24.10	L	29.7	---	-7.8
1.852383	25.53	---	56.00	30.47	L	29.7	-4.17	---
1.964320	26.82	---	56.00	29.18	L	29.7	-2.88	---
1.964320	---	23.26	46.00	22.74	L	29.7	---	-6.44
2.556656	---	18.73	46.00	27.27	L	29.7	---	-10.97
2.659266	25.09	---	56.00	30.91	N	29.7	-4.61	---
2.747883	26.43	---	56.00	29.57	L	29.7	-3.27	---
3.554766	---	22.69	46.00	23.31	N	29.7	---	-7.01
4.221727	---	20.35	46.00	25.65	N	29.7	---	-9.35

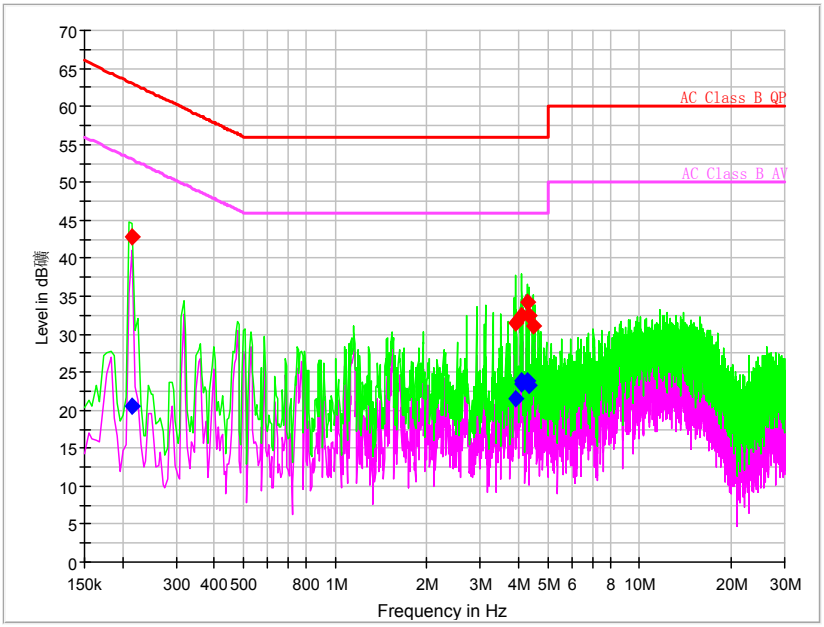
EUT+4#Battery+5#Charger+3# USB Cable2:



Pic3. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBµV)	Pmea Average (dBµV)
0.387867	---	25.26	48.11	22.85	L	29.6	---	-4.34
0.420516	---	21.35	47.44	26.09	L	29.6	---	-8.25
0.420516	28.79	---	57.44	28.65	L	29.6	-0.81	---
1.096805	---	23.30	46.00	22.70	L	29.7	---	-6.4
1.106133	27.04	---	56.00	28.96	L	29.7	-2.66	---
1.810406	27.25	---	56.00	28.75	L	29.7	-2.45	---
2.010961	25.52	---	56.00	30.48	L	29.7	-4.18	---
2.482031	---	22.59	46.00	23.41	N	29.7	---	-7.11
2.510016	26.80	---	56.00	29.20	L	29.7	-2.9	---
2.510016	---	22.88	46.00	23.12	L	29.7	---	-6.82
3.993188	25.90	---	56.00	30.10	L	29.7	-3.8	---
4.678805	---	21.15	46.00	24.85	L	29.7	---	-8.55

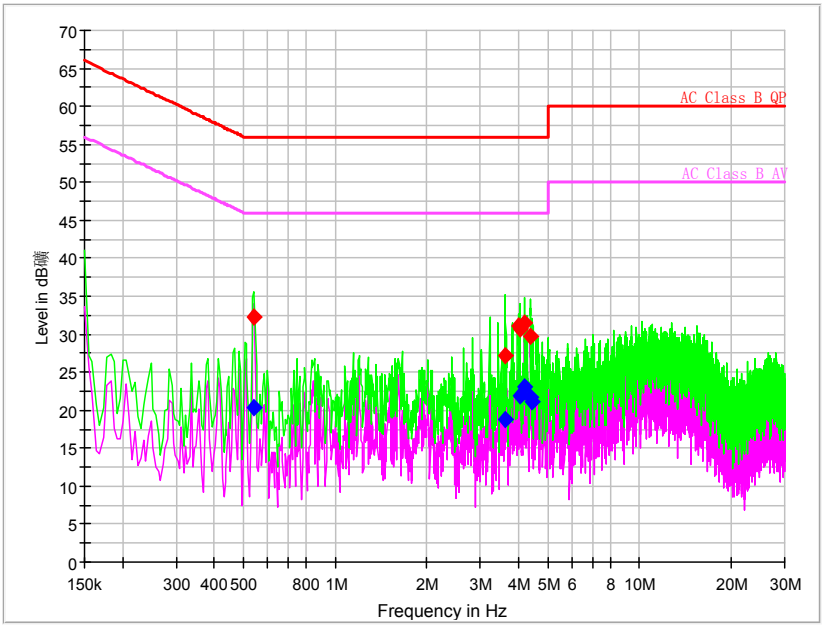
EUT + 2#USB Cable1+4#Battery +Laptop:



Pic4. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBµV)	Pmea Average (dBµV)
0.215297	---	20.60	53.00	32.40	L	29.6	---	-9
0.215297	42.87	---	63.00	20.13	L	29.6	13.27	---
3.909234	31.54	---	56.00	24.46	L	29.7	1.84	---
3.913898	---	21.57	46.00	24.43	L	29.7	---	-8.13
4.086469	---	23.51	46.00	22.49	L	29.7	---	-6.19
4.114453	32.55	---	56.00	23.45	L	29.7	2.85	---
4.114453	---	23.85	46.00	22.15	L	29.7	---	-5.85
4.268367	34.16	---	56.00	21.84	L	29.7	4.46	---
4.268367	---	23.90	46.00	22.10	L	29.7	---	-5.8
4.338328	32.52	---	56.00	23.48	N	29.7	2.82	---
4.338328	---	23.33	46.00	22.67	N	29.7	---	-6.37
4.459594	31.14	---	56.00	24.86	L	29.7	1.44	---

EUT + 3#USB Cable2+4#Battery +Laptop:



Pic5. Conducted emission L&N Line

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Corr. (dB)	Pmea QuasiPeak (dBµV)	Pmea Average (dBµV)
0.541781	---	20.39	46.00	25.61	L	29.6	---	-9.21
0.541781	32.32	---	56.00	23.68	L	29.6	2.72	---
3.615398	---	18.78	46.00	27.22	L	29.7	---	-10.92
3.615398	27.09	---	56.00	28.91	L	29.7	-2.61	---
4.011844	31.06	---	56.00	24.94	L	29.7	1.36	---
4.035164	30.65	---	56.00	25.35	L	29.7	0.95	---
4.039828	---	21.83	46.00	24.17	L	29.7	---	-7.87
4.179750	---	23.03	46.00	22.97	L	29.7	---	-6.67
4.203070	31.52	---	56.00	24.48	L	29.7	1.82	---
4.384969	---	21.64	46.00	24.36	L	29.7	---	-8.06
4.394297	29.69	---	56.00	26.31	L	29.7	-0.01	---
4.454930	---	21.14	46.00	24.86	L	29.7	---	-8.56

2.2.2RadiatedEmissions-FCC Part15.109

Ambient condition:

Temperature	Relative humidity	Pressure
24.2°C	40.8%	100.3kPa

Test Setup:

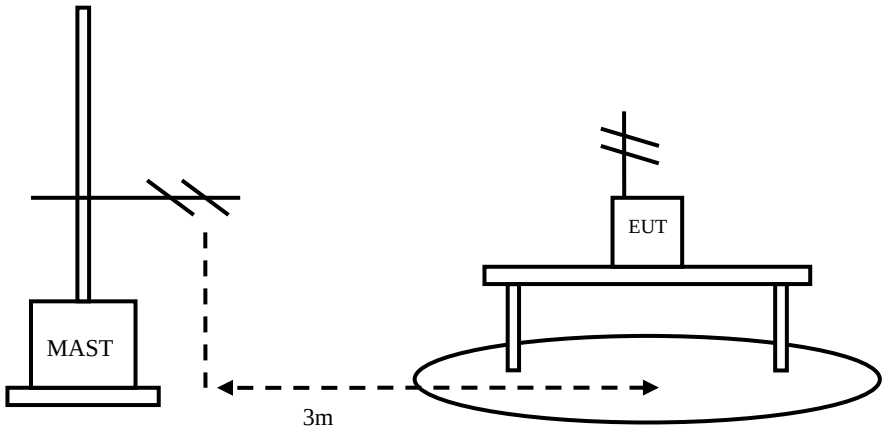


Figure 3

Test Procedure:

EUT+Laptop:
The EUT should be placed on a non-metallic table80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.
The EUT was connected with a laptop via the USB cable and transferred the data from laptop to the EUT. The test set-up and the test methods are performed according to ANSI C63.4:2014
Then start the test software EMC32. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna VULB 9163.
During the test, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow: 1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.
The data of cable loss and antenna factor have been calibrated in full testing

frequency range before the testing.

EUT+Charger:
The EUT should be placed on a non-metallic table 80cm above the ground plane. The receive antennas shall be moved from 1 to 4 meters. The distance between EUT and receive antenna should be 3 meters.
The EUT should work in idle mode. Open the functions of EUT. The test set-up and the test methods are performed according to ANSI C63.4:2014.
Then start the test software EMC32. Sweep the whole frequency band through the range from 30MHz to 1GHz, using receive log period antenna VULB 9163.
During the test, the height of receive antenna shall be moved from 1 to4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The EUT is laid in two modes as follow: 1. put the EUT in horizontal direction; 2. put the EUT in vertical direction.
The data of cable loss and antenna factor have been calibrated in full testing frequency range before the testing. All test results are performed with max hold at the horizontal and vertical polarity.
RBW=120kHz, VBW=300kHz, when the test frequency: 30MHz<f<1GHz
RBW=1MHz, VBW=3MHz, when the test frequency: f>1GHz
A “reference path loss” is established and the A_{Rpl} is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss.
The measurement results are obtained as described below:
Result= $P_{mea} + A_{Rpl}$

Limit:

Frequency of Emission(MHz)	Limits	
	Detector	Unit (dBμV/m)
30～88	Quasi-peak	40
88～216	Quasi-peak	43.5
216～960	Quasi-peak	46
960～1000	Quasi-peak	54
1000～5th harmonic of the highest frequency or 40GHz, whichever is lower	Average Peak	54 74

Test result:
Sample calculation: (23.88 dB μ V/m) = (41.88 dB μ V/m) + (-18.0 dB), the corresponding frequency is 215.997500MHz.

EUT + 2#USB Cable1+4#Battery +Laptop:

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
215.997500	23.88	43.50	-18.0	41.88	V
263.964000	24.92	46.00	-16.1	41.02	V
311.979000	27.38	46.00	-14.7	42.08	V
359.994000	32.62	46.00	-13.1	45.72	V
398.309000	33.97	46.00	-11.8	45.77	V
940.636000	22.11	46.00	-1.0	23.11	V

EUT + 3#USB Cable2+4#Battery +Laptop:

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
215.997500	22.91	43.50	-18.0	40.91	V
264.012500	26.68	46.00	-16.1	42.78	V
300.533000	28.59	46.00	-15.1	43.69	V
359.994000	29.37	46.00	-13.1	42.47	V
408.009000	34.19	46.00	-11.5	45.69	V
999.854500	20.53	54.00	-0.3	20.83	V

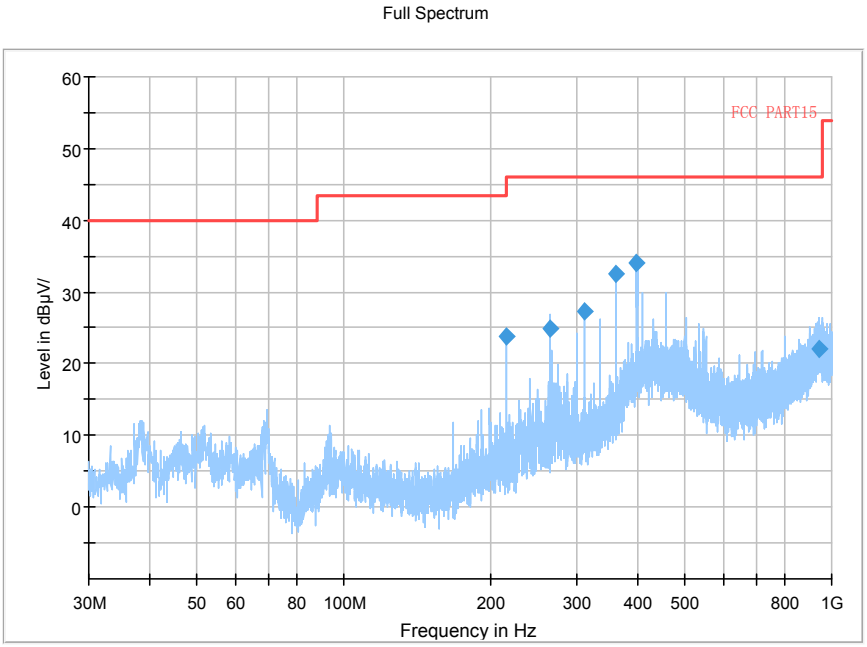
EUT+4#Battery+5#Charger+2# USB Cable1:

Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
38.051000	26.19	40.00	-18.8	44.99	V
59.148500	13.96	40.00	-18.3	32.26	V
128.552000	2.62	43.50	-21.2	23.82	V
197.082500	11.84	43.50	-18.5	30.34	V
530.423000	12.35	46.00	-8.5	20.85	V
928.656500	17.55	46.00	-1.1	18.65	V

EUT+4#Battery+5#Charger+3# USB Cable2:

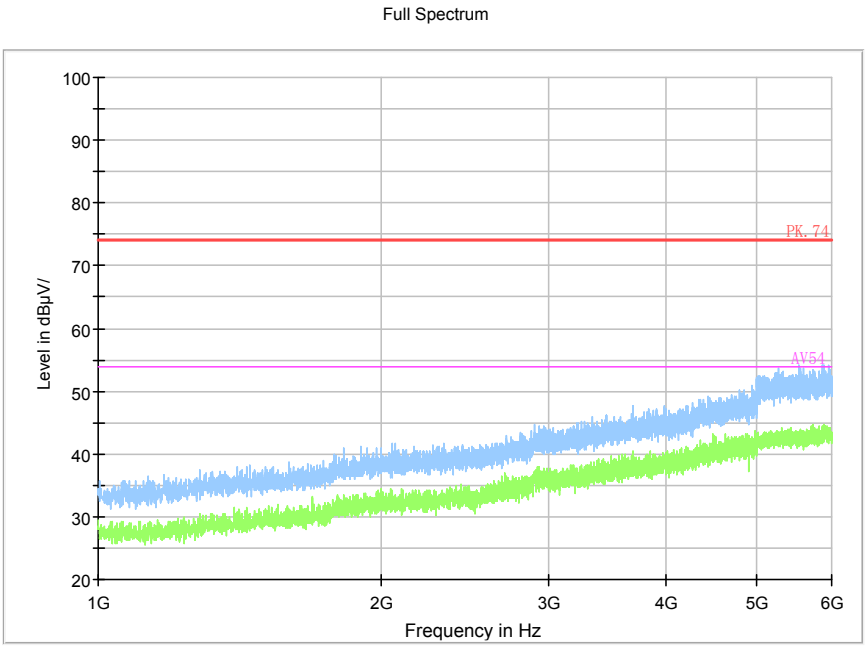
Frequency(MHz)	Result(dB μ V/m)	Limit (dB μ V/m)	ARpl (dB)	Pmea (dB μ V/m)	Polarity
40.961000	28.58	40.00	-18.0	46.58	V
58.857500	15.24	40.00	-18.3	33.54	V
96.978500	12.99	43.50	-19.2	32.19	V
293.694500	18.32	46.00	-15.3	33.62	V
392.440500	16.31	46.00	-12.0	28.31	V
936.756000	17.65	46.00	-1.0	18.65	V

EUT + 2#USB Cable1+4#Battery +Laptop: refer to Pic6,Pic7, Pic8, Pic9



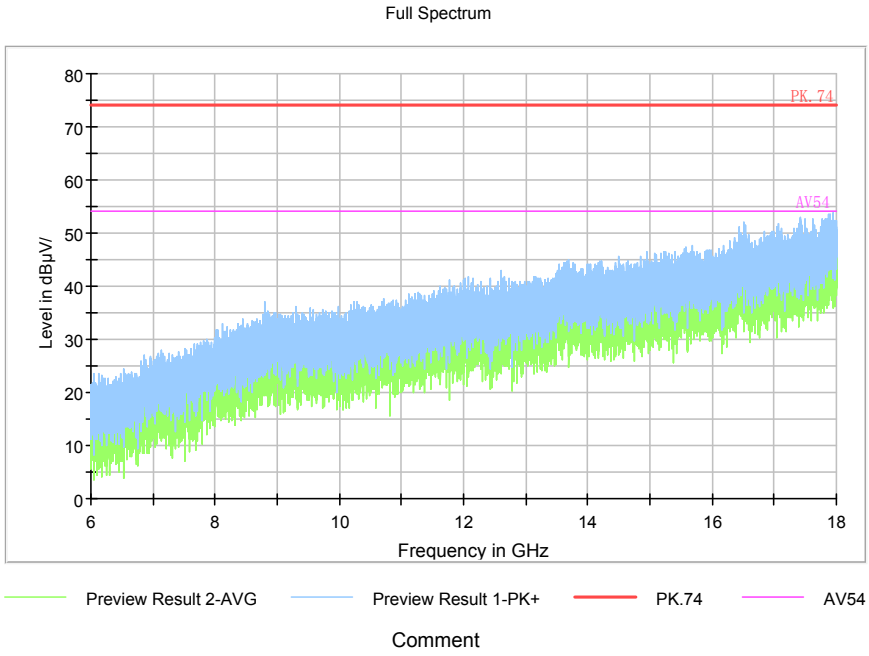
Pic6. Radiated emission(30MHz – 1GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical



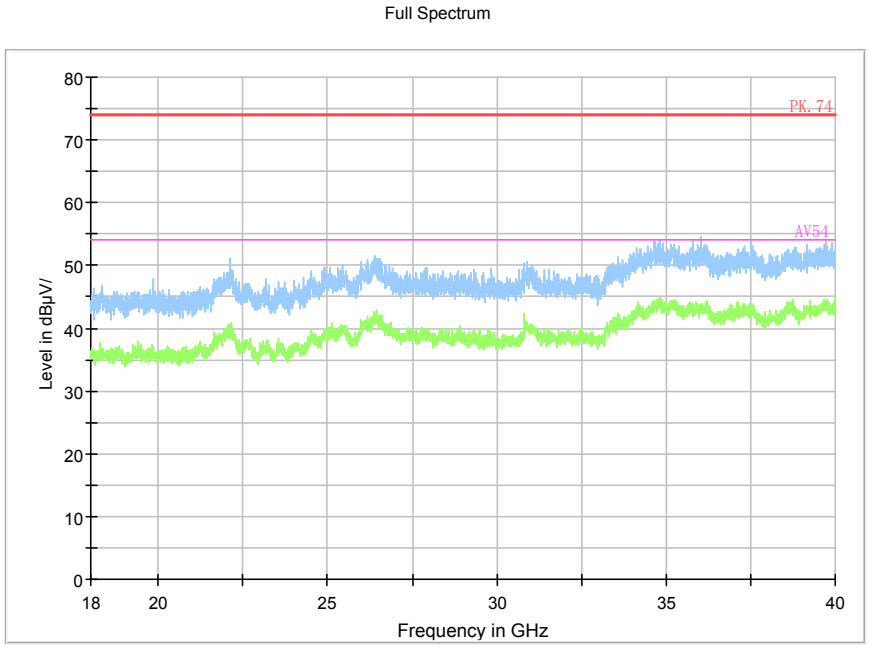
Pic7. Radiated emission (1GHz –6GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic8. Radiated emission (6GHz –18GHz)

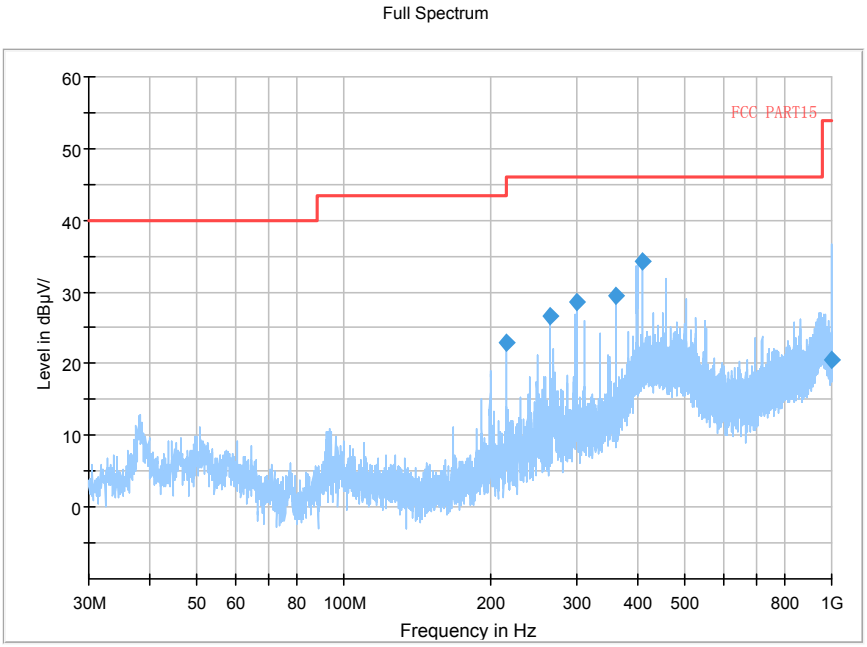
Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic9. Radiated emission (18GHz –40GHz)

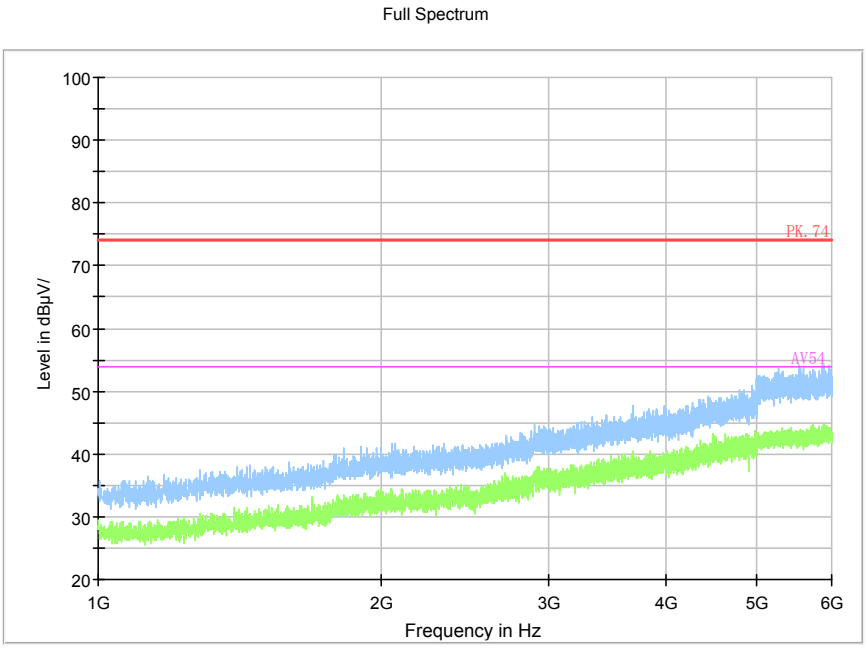
Note：The test data in the graph includes two polarizations: horizontal and vertical.

EUT + 3#USB Cable2+4#Battery +Laptop: refer to Pic10, Pic11, Pic12, Pic13



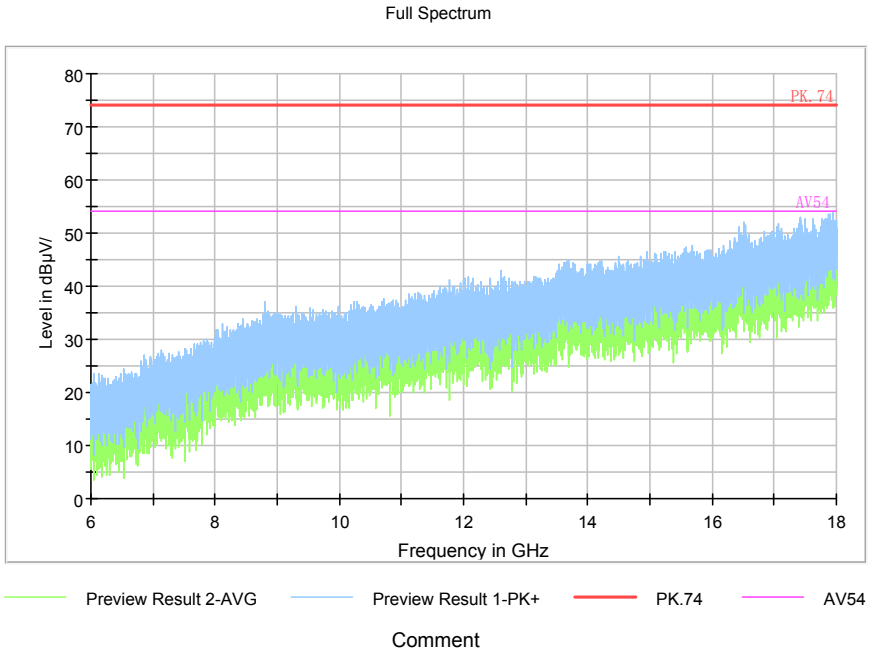
Pic10. Radiated emission(30MHz – 1GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical



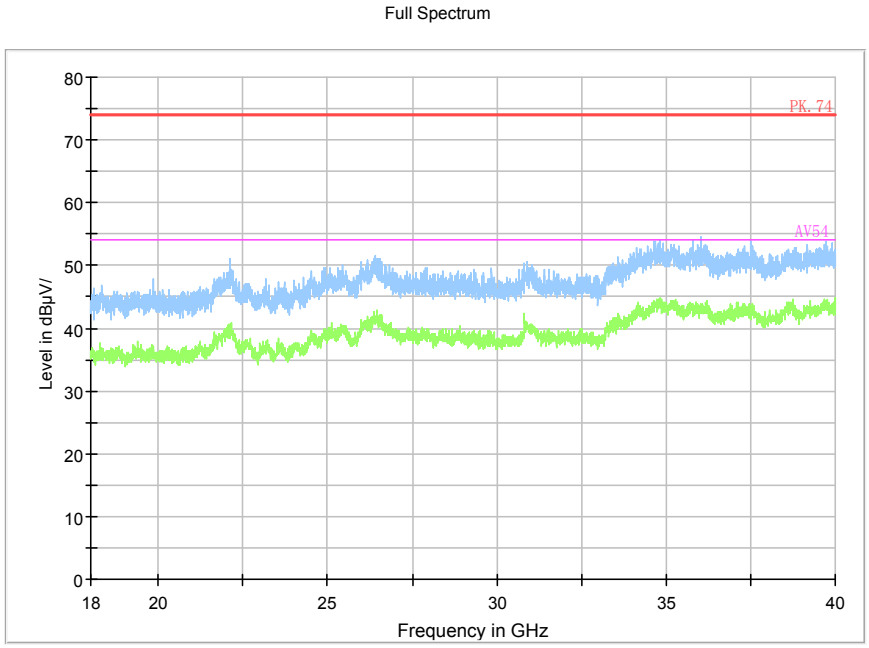
Pic11. Radiated emission (1GHz –6GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic12. Radiated emission (6GHz –18GHz)

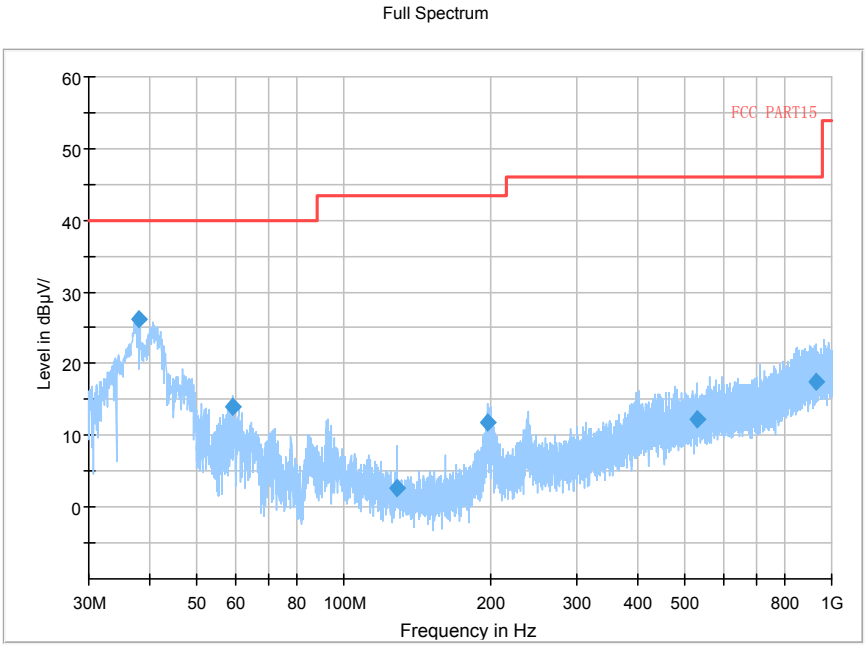
Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic13. Radiated emission (18GHz –40GHz)

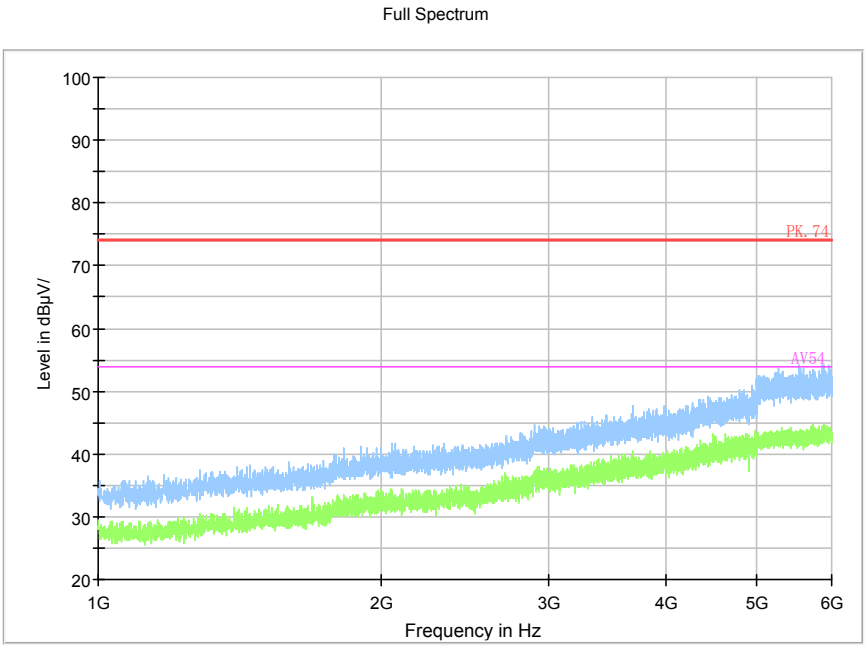
Note：The test data in the graph includes two polarizations: horizontal and vertical.

EUT+4#Battery+5#Charger+2# USB Cable1: refer to Pic14, Pic15, Pic16, Pic17



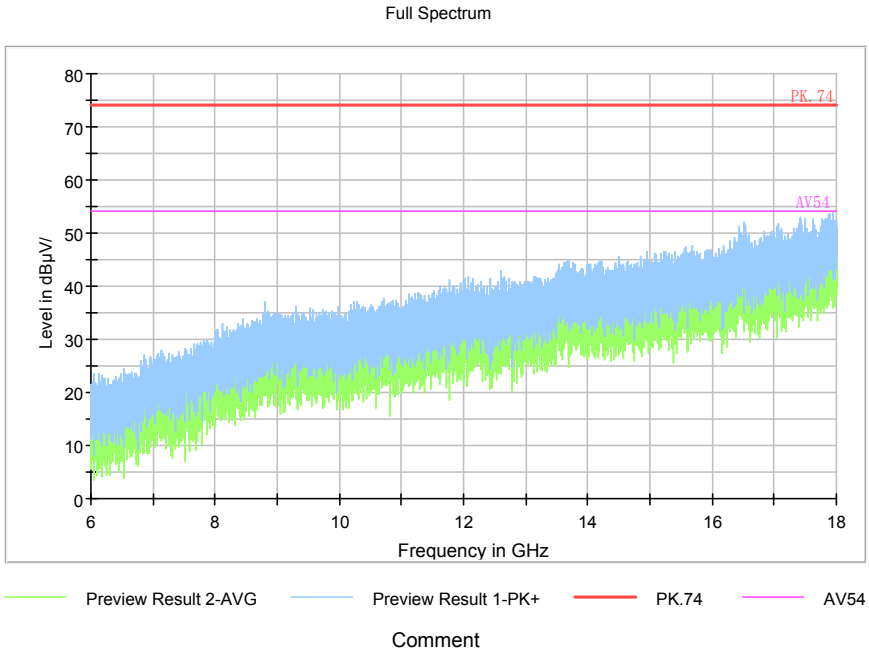
Pic14. Radiated emission(30MHz – 1GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical



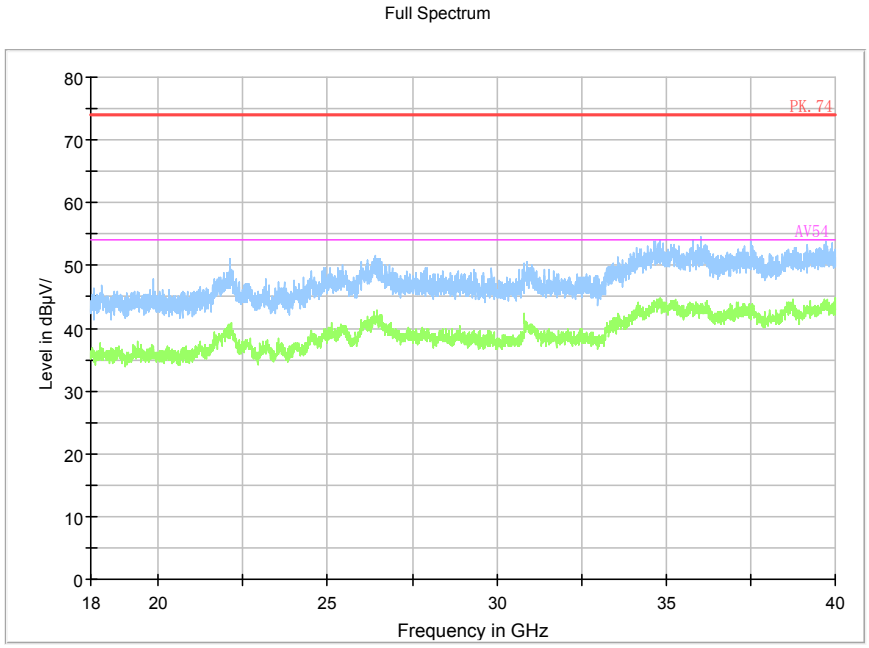
Pic15. Radiated emission (1GHz –6GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic16. Radiated emission (6GHz –18GHz)

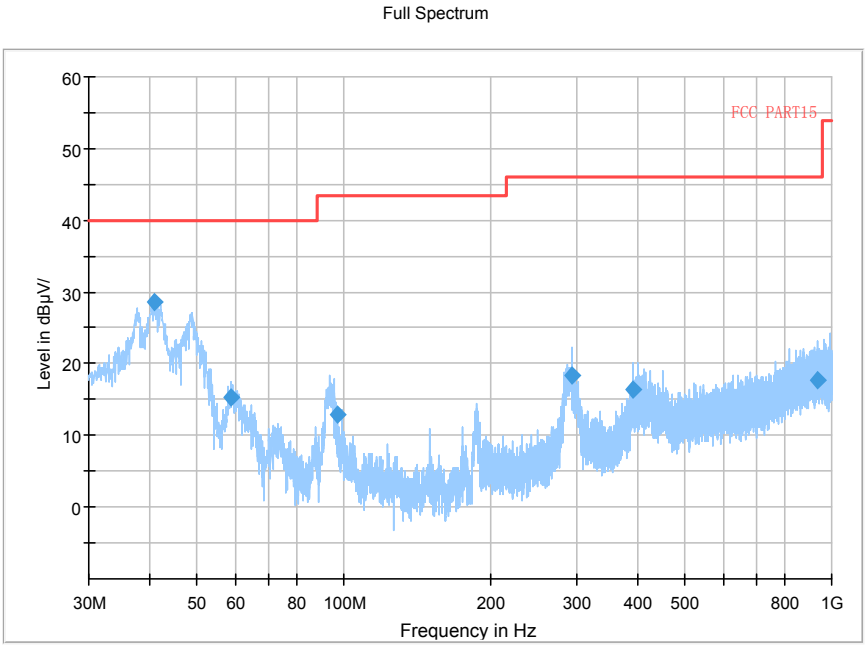
Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic17. Radiated emission (18GHz –40GHz)

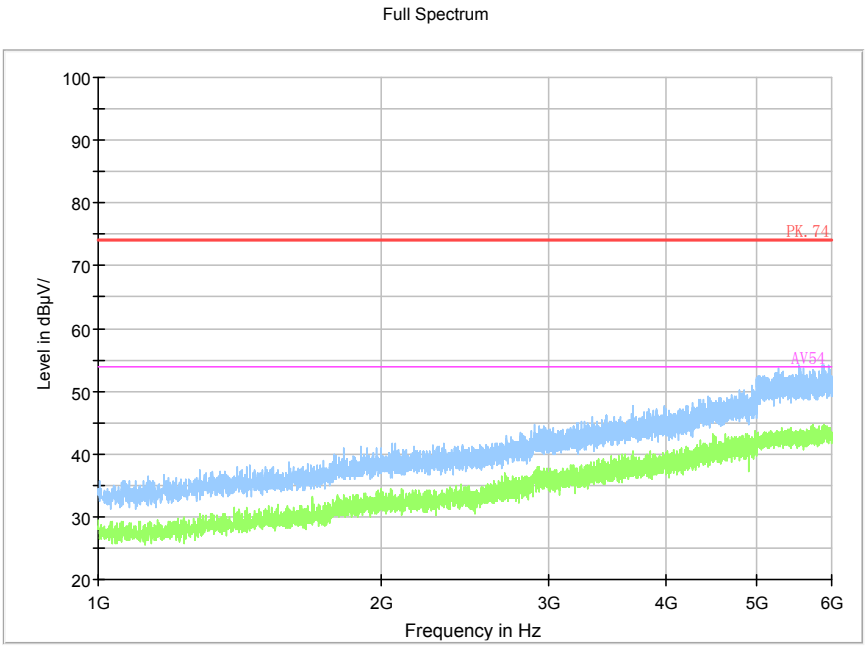
Note：The test data in the graph includes two polarizations: horizontal and vertical.

EUT+4#Battery+5#Charger+3# USB Cable2: refer to Pic18, Pic19, Pic20, Pic21



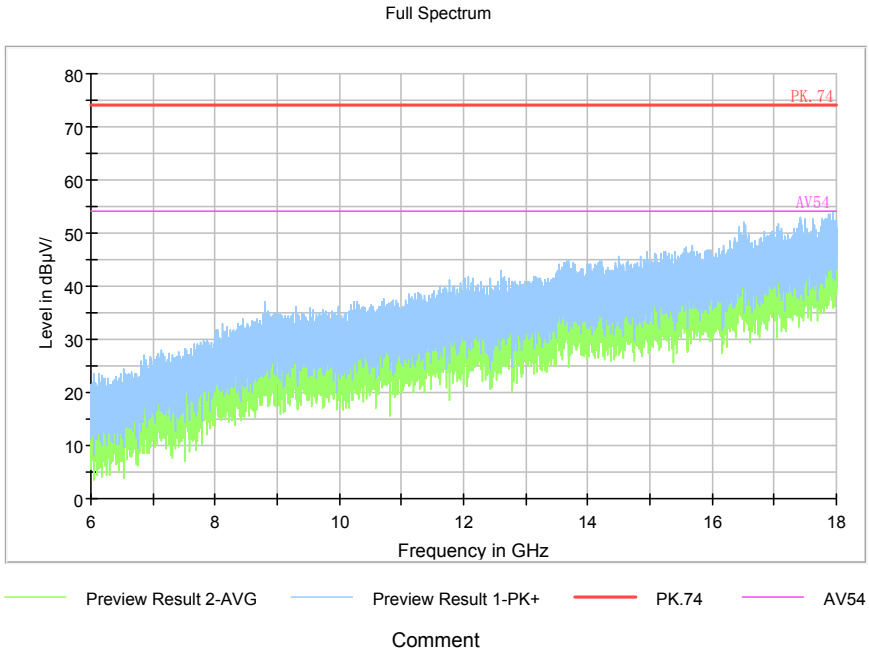
Pic18. Radiated emission(30MHz – 1GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical



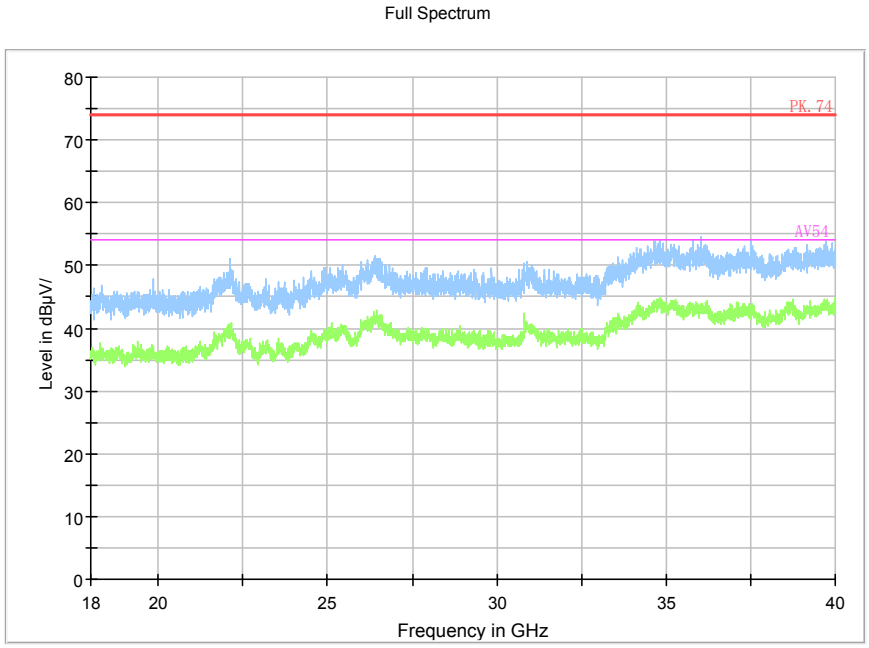
Pic19. Radiated emission (1GHz –6GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic20. Radiated emission (6GHz –18GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.



Pic21. Radiated emission (18GHz –40GHz)

Note：The test data in the graph includes two polarizations: horizontal and vertical.

2.3. List of test equipments

No.	Name/Model	Manufacturer	S/N	Calibration Due Date	Calibration Date
1	23.18m×16.88m×9.60mSemi-AnechoicChamber	FRANKONIA	-----	5th Sep. 2021	6th Sep. 2016
2	ESW EMI test receiver	R&S	101574	20th Aug. 2021	20th Aug. 2020
3	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	5th Sep. 2021	6th Sep. 2016
4	ESR3 EMI test receiver	R&S	102361	21th Apr. 2021	20th Apr. 2020
5	VULB 9163 Ultra log test antenna	schwarzbeck	867	25th Mar. 2021	25th Mar. 2020
6	ENV216 AMN	R&S	3560.6550.12	20th Aug. 2021	20th Aug. 2020
7	HF 907 Double-Ridged Waveguide Horn Antenna	R&S	100512	25th Mar. 2021	25th Mar. 2020
8	SAS-574 Horn Antenna	R&S	535	21th Apr. 2023	22th Apr. 2020
9	PS2000 Turn Table	FRANKONIA	-----	-----	-----
10	MA260 Antenna Master	FRANKONIA	-----	-----	-----
11	EMC32EMI test software Version 10.20.01	R&S	-----	-----	-----

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